

miniaturized transformers

DC-DC CONVERTER

ULTRA-MINIATURE

SUB-MINIATURE

MINIATURIZED

TRANSISTOR

MIL-T-27A

HERMETIC

INDUSTRIAL



MICROTRAN[®] company, inc.



MANUFACTURING PROCEDURES

Coil Winding

Double formex wire is used in most cases to insure freedom from wire failure under adverse conditions.

Leading

Ear type of bobbin is used where possible to provide an excellent tie point and permanent connection.

Laminating

Nickel alloy laminations, such as Mu-metal and Permalloy are used for low power applications. Only laminations having insulated coatings are used so as to minimize insertion losses due to eddy currents. Where required, grain oriented Silectron "C" cores or laminations are used.

Assembly

Heavy insulating materials between case and winding assure long, trouble free service. Rugged internal brackets assure resistance to high shock and vibration.

Soldering

Induction heating process is used for sealing terminal header to can. This method assures minimum heating of internal components.

Oven Drying

All units are thoroughly pre-heated prior to impregnation to remove all traces of moisture.

Impregnation

Resins or waxes are used as impregnants under high vacuum for sufficient time to thoroughly saturate and seal transformer winding and associate components. Where required, units are supplied encapsulated or molded.

Top Seal

Top fill hole of transformer is sealed with solder by induction heating process while still hot, thus completing the hermetic sealing before moisture and air can reenter case.

Leak Test

Hermetically sealed units are 100% checked for leaks to prove the seal.

Painting

All cases are degreased and primed for perfect paint adhesion. A hard low luster synthetic enamel is used for the final finish coat.

Boxing

Distributor stock items are shipped in individual boxes, that have full schematic and electrical information enclosed.

PRODUCTION TESTING AND QUALITY CONTROL PROCEDURES

Microtran Co. manufactures to Armed Forces specifications and is on the Military Qualified Products list for Transformers. In-Plant testing facilities accelerate contract completion. Electrical and environmental tests are made in accordance with the purchaser's specifications and the performance characteristics required. Bridge type testing circuits, being readily adaptable to limit testing, are used for this type of operation, as they have a high inherent accuracy and a high productive rate.

ELECTRICAL AND ENVIRONMENTAL TESTS PERFORMED



Continuity and Resistance
Inductance
Polarity of Windings
Insulation Resistance
Dielectric Breakdown
Ratio of Windings
Leakage Inductance

Distributed Capacity
Frequency Response
Interlayer Insulation
Phase Shift
Insertion Loss
Exciting Current
and Core Loss

Magnetic Shielding
Temperature Rise
Salt Water Immersion
Humidity
Thermal Shock
Shock and Vibration
End Performance Tests





MICROTRAN®

MINIATURIZED MIL-T-27A TRANSFORMERS AVAILABLE FROM STOCK

This catalog lists Hermetically Sealed, Molded, Cased, and Open transformers available off-the-shelf from stocking distributors.

Listed on pages 14 through 19 are groups of transformers built to exacting customers specifications. These units typify the wide variety of units available on special order to your specifications.

Rapid delivery is assured by the large assortment of materials on hand in our sample department. Write for design specification sheets.

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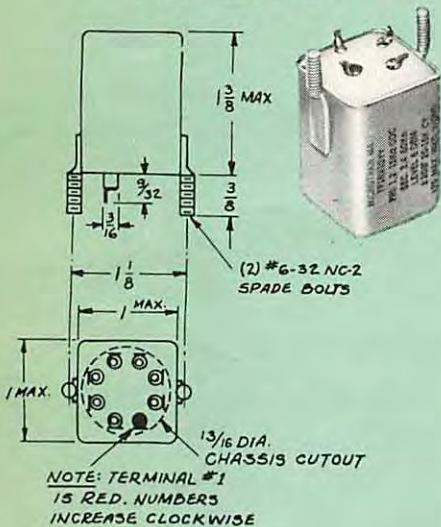
HERMETICALLY SEALED MINIATURE TRANSFORMERS

The ruggedized military type units shown on this and the accompanying page were developed to meet the demands of a growing miniaturization program. The various types shown are available from stock for immediate delivery. For use in miniaturized vacuum tube and Transistor circuitry.

MIL CASE M-AG

Grey Enamel Finish. Weight 2½ oz. Supplied with compression sealed ceramic terminals in MIL-T-27 AG case.

To order add -AG to Part Number. i.e. M2-AG, MT3-AG



MINIATURE AUDIO TRANSFORMERS ("M" SERIES)

Part No.*	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Frequency Response ±2 db.
M1-(*)	Mike or line to 1 grid	50/250/600 C.T.	50,000	0	5	20-20,000
M2-(*)	Mike or line to 2 grids	50/250/600 C.T.	50,000 C.T.	0	5	20-20,000
M3-(*)	Dynamic mike to 1 grid	7.5/30	50,000	0	5	20-20,000
M4-(*)	Single plate to 1 grid	15,000	60,000	0	6	20-15,000
M5-(*)	Single plate to 1 grid	15,000	60,000	4	14	200-20,000
M6-(*)	Single plate to 2 grids	15,000	95,000 C.T.	0	5	20-15,000
M7-(*)	Single plate to 2 grids	15,000	95,000 C.T.	4	11	200-20,000
M8-(*)	Single plate to line	15,000	50/250/600 C.T.	0	8	20-20,000
M9-(*)	Single plate to line	15,000	50/250/600 C.T.	4	21	150-20,000
M10-(*)	Push pull plates to line	30,000 P.-P.	50/250/600 C.T.	0	8	30-50,000
M11-(*)	Crystal mike to line	50,000	50/250/600 C.T.	0	5	20-20,000
M12-(*)	Mixing and matching	50/250 C.T.	50/250/600 C.T.	0	8	20-20,000
M13-(*)	Reactor	300 hy. 0 d.c.	50 hy. @ 3 ma.			6000 Ω D.C.R.
M14-(*)	50: 1 mike to grid	200	½ Megohm	0	9	80-3,000
M15-(*)	10: 1 plate to grid	10,000	1 Megohm	0	11	100-2,500

MINIATURE TRANSISTOR TRANSFORMERS ("MT" SERIES)

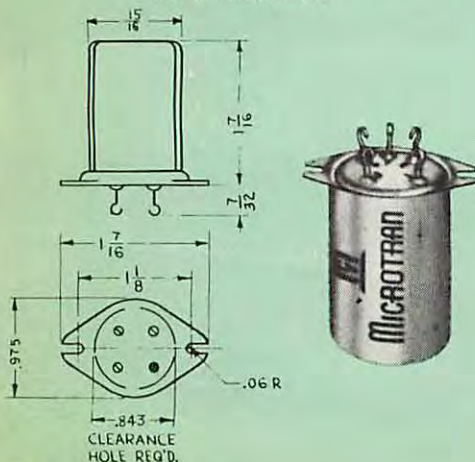
Part No.*	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Frequency Response ±2 db.
MT1-(*)	Line to Base	600	600	10	23	200-15,000
MT2-(*)	Coll. to P.P. Base 2N57	100	10 C.T./40 C.T.	100	27	200-20,000
MT3-(*)	Collector to Base or line	50,000	600	3	20	300-15,000
MT5-(*)	Collector to speaker	50,000	6	3	20	300-15,000
MT6-(*)	Collector to P.P. Base	100,000	1200 C.T.	1.4	17	200-15,000
MT7-(*)	Collector to P.P. Base	25,000	1200 C.T.	3	22	200-15,000
MT8-(*)	P.P. Collector to P.P. Base	50,000 C.T.	1200 C.T.	3	20	300-15,000
MT9-(*)	Line to P.P. Base	600 C.T.	1200 C.T.	4	23	200-15,000
MT10-(*)	Collector to Base	25,000	600	3	22	200-15,000
MT11-(*)	P.P. Coll. to P.P. Base	4,000 C.T.	600 C.T.	3	32	200-15,000
MT12-(*)	Output collector to speaker	2,000	3.4	10	32	200-15,000
MT13-(*)	P.P. Coll. to speaker	4,000 C.T.	3.4	3	32	200-15,000
MT14-(*)	Coll. to Spkr. 2N179	400	10	50	25	200-20,000
MT15-(*)	P.P. Servo Output 2N57	500 C.T.	210	30	27	300-20,000
MT18-(*)	P.P. Coll. to P.P. Base	25,000 C.T.	1,200 C.T.	6	22	200-15,000
MT20-(*)	P.P. Coll. to P.P. Base	50,000 C.T.	1200/300 Split	3	20	300-15,000
MT21-(*)	P.P. Coll. to P.P. Base	4,000 C.T.	600/150 Split	3	32	200-15,000
MT22-(*)	Line to P.P. Base	600/150 Split	1,200 C.T.	4	23	200-15,000
MT23-(*)	P.P. coll. to Servo	250 C.T.	1000	10	30	300-15,000

*Add either -AG, or -H, or -M to part No. to designate construction. See Photos

HERMETIC M-H

Grey Enamel Finish. Weight 1¼ oz. High Compression Glass Terminals. .120 holes instead of slots, available on special order.

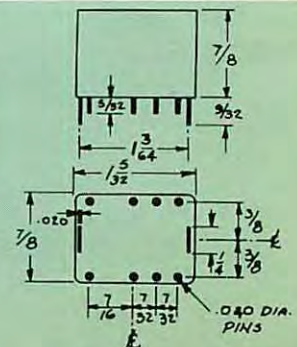
To order add -H to Part Number. i.e. M2-H, MT3-H



MOLDED M-M

Designed for plug-in printed circuit applications. Cast Epoxy resin provides highest resistance to extremes of ambient. Weight 1¼ oz.

To order add -M to Part Number. i.e. M2-M, MT3-M



The units shown on this page are suitable for rigid sub-miniaturization applications where the highest resistance to extremes of ambients must still be maintained. Available from stock for immediate delivery.

HERMETICALLY SEALED SUB - MINIATURE TRANSFORMERS

SUB-MINIATURE AUDIO TRANSFORMERS ("SM" SERIES)

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Freq. Response ± 2 db.
SM1-(*)	Input	200/50	250,000/62,500	0	6	80-10,000
SM2-(*)	Interstage 3:1	10,000	90,000	0	8	100-10,000
SM3-(*)	Plate to line	10,000	200	3	21	150-10,000
SM4-(*)	Output	30,000	50	1	21	150-10,000
SM5-(*)	Reactor 50 HY at 1 MIL. D.C.	3,000 ohms D.C. Res.				
SM6-(*)	Output	100,000	60	0.5	21	150-10,000

SUB-MINIATURE TRANSISTOR TRANSFORMERS ("SMT" SERIES)

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Freq. Response ± 2 db.
SMT1-(*)	Line to Base	600	600	9	23	200-15,000
SMT3-(*)	Collector to Base or line	50,000	600	1	20	300-15,000
SMT4-()	P.P. Coll. to P.P. Base	50,000 C.T.	600 C.T.	2	20	200-15,000
SMT5-(*)	Collector to speaker	50,000	6	1	20	300-15,000
SMT7-(*)	Collector to P.P. Base	25,000	1200 C.T.	1.5	20	200-15,000
SMT8-()	P.P. Coll. to P.P. Base	50,000 C.T.	1,200 C.T.	2	20	200-15,000
SMT9-()	Line to P.P. Base	600 C.T.	1,200 C.T.	18	23	200-15,000
SMT10-(*)	Collector to Base	25,000	600	2	20	200-15,000
SMT12-(*)	Output collector to speaker	2,000	3.4	5	30	200-15,000
SMT13-(*)	Output P.P. collector to spkr.	4,000 C.T.	3.4	5	30	200-15,000
SMT16-(*)	Collector to P.P. Base	10,000	1,500 C.T.	1	23	200-15,000
SMT17-()	P.P. Coll. to P.P. Base	10,000 C.T.	200 C.T.	6	20	200-15,000
SMT18-()	P.P. Coll. to P.P. Base	25,000 C.T.	1,200 C.T.	3	20	200-15,000
SMT19-(*)	Collector to P.P. Base	2,500	2,500 C.T.	2.5	26	200-15,000

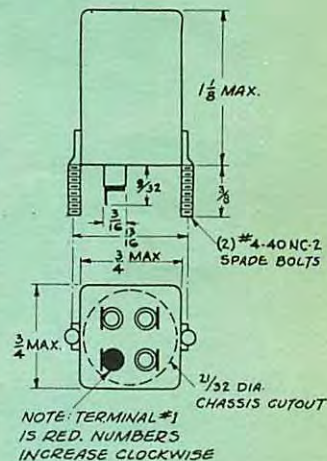
*Add either -AF, or -H, or -M to Part No. to designate construction. See Photos.

*These items not available in -AF case.

MIL CASE SM-AF

Grey Enamel Finish. Weight 1 1/8 oz. Supplied with compression sealed ceramic terminals in MIL-T-27 AF case.

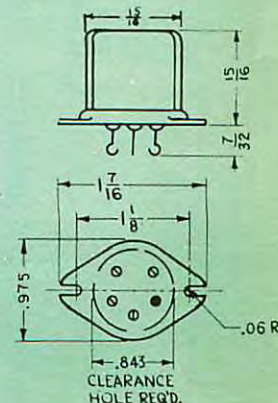
To order add -AF to Part Number. i.e. SM2-AF, SMT3-AF



HERMETIC SM-H

Grey Enamel Finish. Weight 1 oz. High Compression Glass Terminals.

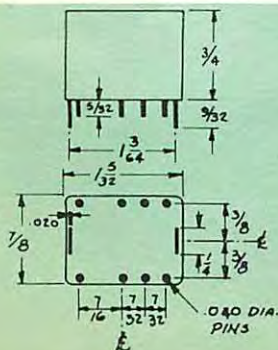
To order add -H to Part Number. i.e. SM2-H, SMT3-H



MOLDED SM-M

Designed for plug-in printed circuit applications. Cast Epoxy resin provides highest resistance to extremes of ambient. Weight 1 1/2 oz.

To order add -M to Part Number. i.e. SM5-M, SMT5-M



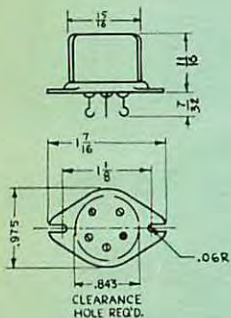
HERMETICALLY SEALED MICRO-MINIATURE TRANSFORMERS

The units shown on this page are suitable for rigid sub-miniaturization applications where the highest resistance to extremes of ambients must still be maintained. Available from stock for immediate delivery.

HERMETIC MM-H

Grey Enamel Finish.
High Compression Glass
Terminals. Weight 3/4 oz.

To order add -H to Part Num-
ber. i.e. MM2-H, MMT3-H



MICRO-MINIATURE AUDIO TRANSFORMERS ("MM" SERIES)

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. DC. Unbalance Ma.	Operating Level DBM	Freq. Response ±2 db.
MM1-(*)	Input	200/50	250,000/62,500	0	4	200-10,000
MM2-(*)	Interstage 3:1	10,000	90,000	0	4	150-10,000
MM3-(*)	Plate to line	10,000	200	3	20	150-10,000
MM4-(*)	Output	30,000	50	1	20	150-10,000
MM5-(*)	Reactor 50 HY at 1 MIL. D.C.	4,700 ohms D.C. Res.				
MM6-(*)	Output	100,000	60	0.5	20	250-10,000
MM7-(*)	Output	30,000	1200	0.5	20	200-10,000

MICRO-MINIATURE TRANSISTOR SERIES ("MMT" SERIES)

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. DC. Unbalance Ma.	Operating Level DBM	Freq. Response ±2 db.
MMT1-(*)	Line to Base	600	600	8	22	200-15,000
MMT3-(*)	Collector to Base or line	50,000	600	0.7	20	200-15,000
MMT4-(*)	P.P. collector to P.P. Base	50,000 C.T.	600 C.T.	1.4	20	200-15,000
MMT5-(*)	Collector to speaker	50,000	6	1	20	200-15,000
MMT7-(*)	Coll. to P.P. Base	25,000	1200 C.T.	1	20	200-15,000
MMT8-(*)	P.P. collector to P.P. Base	50,000 C.T.	1200 C.T.	1.4	20	200-15,000
MMT9-(*)	Line to P.P. Base	600 C.T.	1200 C.T.	16	22	200-15,000
MMT10-(*)	Collector to Base	25,000	600	1	20	200-15,000
MMT11-(*)	P.P. col. to P.P. Base or line	4,000 C.T.	600 C.T.	5	28	200-15,000
MMT12-(*)	Coll. to Spkr.	2,000	3.4	5	28	200-15,000
MMT13-(*)	Output P.P. collector to spkr.	4,000 C.T.	3.4	5	28	200-15,000
MMT16-(*)	Collector to P.P. Base	10,000	1,500 C.T.	1	20	200-15,000
MMT17-(*)	P.P. Coll. to P.P. Base	10,000 C.T.	200 C.T.	6	20	200-15,000
MMT18-(*)	P.P. Coll. to P.P. Base	25,000 C.T.	1,200 C.T.	2	20	200-15,000
MMT19-(*)	Collector to P.P. Base	2,500	2,500 C.T.	2	23	200-15,000

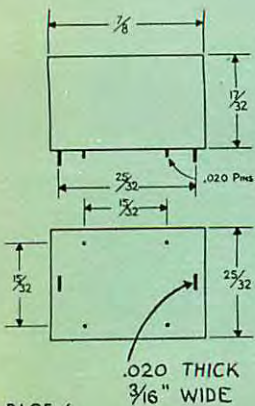
*Add either -M, or -H to Part No. to designate construction. See Photos.

MOLDED MM-M

Micro-Miniature Size

Designed for plug-in printed circuit applications. Cast Epoxy resin provides highest resistance to extremes of ambient. Weight 1/2 oz.

To order add -M to Part Num-
ber. i.e. MM2-M, MMT2-M.

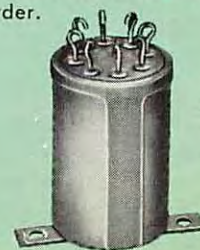


SPECIAL STOCK UNITS

On special order, Catalog items listed on pages 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, are available with modified electrical characteristics such as extra taps, impedance changes, or High Temperature construction. Shown below are the typical special mechanical constructions that are available on special order.



Epoxy Encapsulation with solder lug terminals (on special order only)



Hermetic Construction with terminals opposite from mounting surface (on special order only)

Designed specifically for Transistor, Servo and Audio applications. All units shown are of MIL-T-27A construction and are available from stock. On special order may be obtained in alternate constructions such as Epoxy molded, or open frame. Also available with modified electrical specifications.

HERMETICALLY SEALED TRANSISTOR DRIVER OUTPUT AND POWER SUPPLY TRANSFORMERS

TRANSISTOR DRIVER TRANSFORMERS

Part Number	Application	Pri. Imp.	Sec. Imp.	Pri. D.C. Unbal. Ma.	Level Watts	Frequency Response ± 2 Db.	Size			Mounting Centers		Mil Case
							D	W	H	Md	Mw	
M8002*	Collector to P.P. Base	560	400 C.T.	18	.15	200-20,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8003*	Collector to P.P. Base	625 C.T.	100 C.T.	20	1.5	200-20,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8004	Collector to P.P. Base	5,400	600 C.T.	15	.075	200-15,000	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{4}$	1 $\frac{1}{4}$ Diag.		AH
M8005	Collector to P.P. Base	7,000	320 C.T.	7	.040	70-15,000	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{4}$	1 $\frac{1}{4}$ Diag.		AH
M8006	Collector to P.P. Base	10,000	6,500 C.T.	.75	.005	200-15,000	$\frac{3}{4}$	$\frac{3}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{16}$ Diag.		AF Mod.

*Bi-Filar wound to minimize switching transients.

TRANSISTOR OUTPUT TRANSFORMERS

Part Number	Application	Pri. Imp.	Sec. Imp.	Pri. D.C. Unbal. Ma.	Level Watts	Frequency Response ± 2 Db.	Size			Mounting Centers		Mil Case
							D	W	H	Md	Mw	
M8008	P.P. Output to Spkr.	25	3-4	600	3	200-20,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8007*	P.P. Auto Transformer	30 C.T.	3-4	200	2	100-20,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8009	P.P. Output to Spkr.	48 C.T.	3.2/8	50	5	200-20,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8010	P.P. Col. to Servo	120 C.T.	1,000	40	6	300-15,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8011	P.P. Output to Spkr.	125 C.T.	3-4	20	1.5	200-15,000	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{4}$	1 $\frac{1}{4}$ Diag.		AH
M8012*	P.P. Col. to Servo	140 C.T.	500	50	6	300-15,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8013*	P.P. Output to Spkr.	250 C.T.	3-4	20	.4	70-15,000	1 $\frac{5}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{4}$	1 $\frac{1}{4}$ Diag.		AH
M8014	P.P. Output to Spkr.	400 C.T.	11	2	.25	300-15,000	$\frac{3}{4}$	$\frac{3}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{16}$		AF Mod.
M8015	P.P. Col. to Servo	1,600 C.T.	800	5	2.5	150-20,000	1 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$	AJ
M8016	P.P. Output to Spkr.	2,550 C.T.	12	4	.10	300-15,000	$\frac{3}{4}$	$\frac{3}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{16}$		AF Mod.

*Bi-Filar wound to minimize switching transients.

POWER SUPPLY TRANSFORMERS

Designed for Silicon Rectifier Circuitry Primary 105/115/125 Volts

Part Number	Frequency Cycles	Secondary		Rectifier Circuit		Size			Mounting Centers		Mil Case
		AC Volts	RMS Amperes	C.T. Full Wave D.C. Volts**	F.W. Bridge D.C. Volts**	D	W	H	Md	Mw	
M8018	380-1600	18.5 C.T.	1	7	14	1 $\frac{15}{16}$	1 $\frac{13}{16}$	2 $\frac{3}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{4}$	EA
M8019	380-1600	18.5 C.T.	3	7	14	2 $\frac{5}{16}$	2 $\frac{1}{16}$	3 $\frac{1}{8}$	1 $\frac{11}{16}$	1 $\frac{1}{16}$	FA
M8020	380-1600	35 C.T.	3	14.5	29	2 $\frac{3}{4}$	2 $\frac{3}{8}$	3 $\frac{13}{16}$	2 $\frac{1}{8}$	1 $\frac{3}{4}$	GA
M8021	380-1600	70 C.T.	1	30	60	2 $\frac{5}{16}$	2 $\frac{1}{16}$	3 $\frac{1}{8}$	1 $\frac{11}{16}$	1 $\frac{1}{16}$	FA
M8022	50/60	18.5 C.T.	3	7	14	3 $\frac{3}{16}$	3 $\frac{1}{16}$	3 $\frac{3}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$	JB
M8023	50/60	35 C.T.	3	14.5	29	3 $\frac{15}{16}$	3 $\frac{3}{8}$	4 $\frac{1}{2}$	3	2 $\frac{1}{16}$	KA
M8024	50/60	70 C.T.	1	30	60	3 $\frac{9}{16}$	3 $\frac{1}{16}$	4 $\frac{7}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$	JA

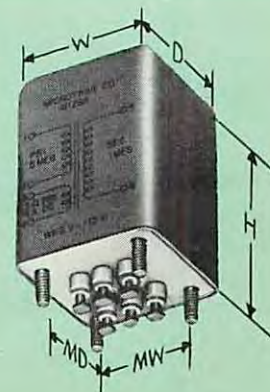
**D.C. Output voltages stated for resistive or inductive rectifier loads.

EPOXY MOLDED (On Special Order Only)

Inserts or studs or tabs for mounting, leads terminated with .040 pins for printed circuit applications.



HERMETICALLY SEALED PER MIL-T-27A



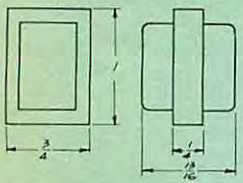
INDUSTRIAL GRADE MINIATURE CASED and OPEN FRAME TRANSFORMERS

These miniature units are suitable for use in high fidelity amplifiers, broadcast equipment, and portable applications. Thorough baking and resin impregnation assure reliable life. Open frame units supplied with 4 inch #27 color coded vinyl leads. Available from stock for immediate delivery.

OPEN FRAME M-F

Weight 1 oz.

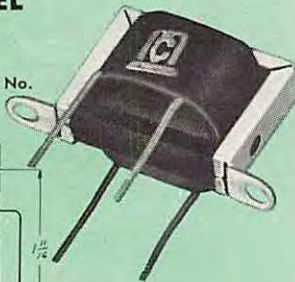
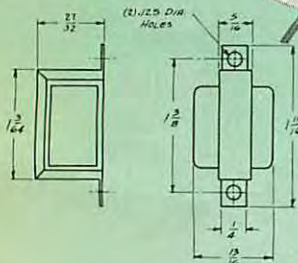
To order add -F to Part No.
i.e. MT3-F, M1-F



OPEN FRAME WITH CHANNEL M-FB

Weight 1.13 oz.

To order add -FB to Part No.
i.e. MT3-FB, M1-FB

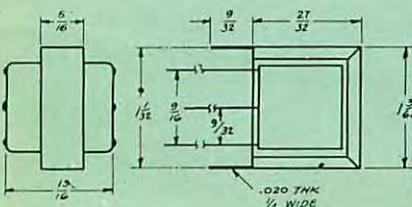


PLUG-IN TAB MOUNTED CHANNEL M-FPB

Designed for Printed
Circuit Applications

Weight 1.13 oz.

To order add -FPB to Part No.
i.e. MT3-FPB, M1-FPB



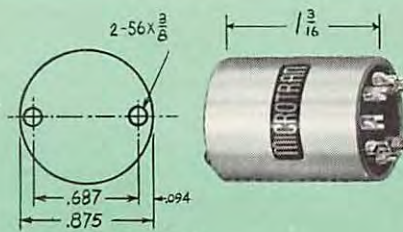
MINIATURE AUDIO TRANSFORMERS ("M" SERIES)

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Freq. Response ± 2 db.
M1-(*)	Mike or line to 1 grid	50/250/600 C.T.	50,000	0	5	20-20,000
M2-(*)	Mike or line to 2 grids	50/250/600 C.T.	50,000 C.T.	0	5	20-20,000
M3-(*)	Dynamic mike to 1 grid	7.5/30	50,000	0	5	20-20,000
M4-(*)	Single plate to 1 grid	15,000	60,000	0	6	20-15,000
M5-(*)	Single plate to 1 grid	15,000	60,000	4	14	200-20,000
M6-(*)	Single plate to 2 grids	15,000	95,000 C.T.	0	5	20-15,000
M7-(*)	Single plate to 2 grids	15,000	95,000 C.T.	4	11	200-20,000
M8-(*)	Single plate to line	15,000	50/250/600 C.T.	0	8	20-20,000
M9-(*)	Single plate to line	15,000	50/250/600 C.T.	4	21	150-20,000
M10-(*)	Push pull plates to line	30,000 P.-P.	50/250/600 C.T.	0	8	30-50,000
M11-(*)	Crystal mike to line	50,000	50/250/600 C.T.	0	5	20-20,000
M12-(*)	Mixing and matching	50/250 C.T.	50/250/600 C.T.	0	8	20-20,000
M13-(*)	Reactor	300 hy. 0 d.c.	50 hy. @ 3 ma.			6000 Ω D.C.R.
M14-(*)	50: 1 mike to grid	200	$\frac{1}{2}$ Megohm	0	9	80-3,000
M15-(*)	10: 1 plate to grid	10,000	1 Megohm	0	11	100-2,500

MINIATURE TRANSISTOR TRANSFORMERS ("MT" SERIES)

MT1-(*)	Line to Base	600	600	10	23	200-15,000
MT2-(*)	Coll. to P.P. Base 2N57	100	10 C.T. 40 C.T.	100	27	200-20,000
MT3-(*)	Collector to Base or line	50,000	600	3	20	300-15,000
MT5-(*)	Collector to speaker	50,000	6	3	20	300-15,000
MT6-(*)	Collector to P.P. Base	100,000	1200 C.T.	1.4	17	200-15,000
MT7-(*)	Collector to P.P. Base	25,000	1200 C.T.	3	22	200-15,000
MT8-(*)	P.P. Collector to P.P. Base	50,000 C.T.	1200 C.T.	3	20	300-15,000
MT9-(*)	Line to P.P. Base	600 C.T.	1200 C.T.	4	23	200-15,000
MT10-(*)	Collector to Base	25,000	600	3	22	200-15,000
MT11-(*)	P.P. Coll. to P.P. Base	4,000 C.T.	600 C.T.	3	32	200-15,000
MT12-(*)	Output collector to speaker	2,000	3.4	10	32	200-15,000
MT13-(*)	P.P. Coll. to speaker	4,000 C.T.	3.4	3	32	200-15,000
MT14-(*)	Coll. to Spkr. 2N179	400	10	50	25	200-20,000
MT15-(*)	P.P. Servo Output 2N57	500 C.T.	210	30	27	300-20,000
MT18-(*)	P.P. Coll. to P.P. Base	25,000 C.T.	1,200 C.T.	6	22	200-15,000
MT20-(*)	P.P. Coll. to P.P. Base	50,000 C.T.	1200/300 Split	3	20	300-15,000
MT21-(*)	P.P. Coll. to P.P. Base	4,000 C.T.	600/150 Split	3	32	200-15,000
MT22-(*)	Line to P.P. Base	600/150 Split	1,200 C.T.	4	23	200-15,000
MT23-(*)	P.P. coll. to Servo	250 C.T.	1000	10	30	300-15,000

*Add either -F, or -FB, or -FPB, or -A, or -P to part No. to designate construction. See Photos



ALUMINUM CASED M-A

Supplied with 2-56 Screws
Weight 1.25 oz.

To order add -A to Part No. i.e. MT3A-, M1-A

OCTAL PLUG-IN M-P

Sealed Plastic Housing
Weight 2 oz.

To order add -P to Part No.
i.e. MT3-P, M1-P



These units are designed for use in Airborne Equipment, Missile Devices and Miniature Amplifiers. Thorough baking and resin impregnation assure reliable life. Insulating materials used are compatible for later epoxy potting of complete assemblies. Supplied with 4 inch #27 color coded vinyl leads. Available from stock.

OPEN FRAME SUB-MINIATURE TRANSFORMERS

SUB-MINIATURE AUDIO TRANSFORMERS ("SM" SERIES)

Part No.*	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Frequency Response ± 2 db.
SM1-(*)	Input	200/50	250,000, 62,500	0	6	80-10,000
SM2-(*)	Interstage 3:1	10,000	90,000	0	8	100-10,000
SM3-(*)	Plate to line	10,000	200	3	21	150-10,000
SM4-(*)	Output	30,000	50	1	21	150-10,000
SM5-(*)	Reactor 50 HY at 1 MIL. D.C.	3,000 ohms D.C. Res.				
SM6-(*)	Output	100,000	60	0.5	21	150-10,000

SUB-MINIATURE TRANSISTOR TRANSFORMERS ("SMT" SERIES)

Part No.*	Application	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance Ma.	Operating Level DBM	Frequency Response ± 2 db.
SMT1-(*)	Line to Base	600	600	9	23	200-15,000
SMT3-(*)	Collector to Base or line	50,000	600	1	20	300-15,000
SMT4-(*)	P.P. Coll. to P.P. Base	50,000 C.T.	600 C.T.	2	20	200-15,000
SMT5-(*)	Collector to speaker	50,000	6	1	20	300-15,000
SMT7-(*)	Collector to P.P. Base	25,000	1200 C.T.	1.5	20	200-15,000
SMT8-(*)	P.P. Coll. to P.P. Base	50,000 C.T.	1,200 C.T.	2	20	200-15,000
SMT9-(*)	Line to P.P. Base	600 C.T.	1,200 C.T.	18	23	200-15,000
SMT10-(*)	Collector to Base	25,000	600	2	20	200-15,000
SMT12-(*)	Output collector to speaker	2,000	3.4	5	30	200-15,000
SMT13-(*)	Output P.P. collector to spkr.	4,000 C.T.	3.4	5	30	200-15,000
SMT16-(*)	Collector to P.P. Base	10,000	1,500 C.T.	1	23	200-15,000
SMT17-(*)	P.P. Coll. to P.P. Base	10,000 C.T.	200 C.T.	6	20	200-15,000
SMT18-(*)	P.P. Coll. to P.P. Base	25,000 C.T.	1,200 C.T.	3	20	200-15,000
SMT19-(*)	Collector to P.P. Base	2,500	2,500 C.T.	2.5	26	200-15,000

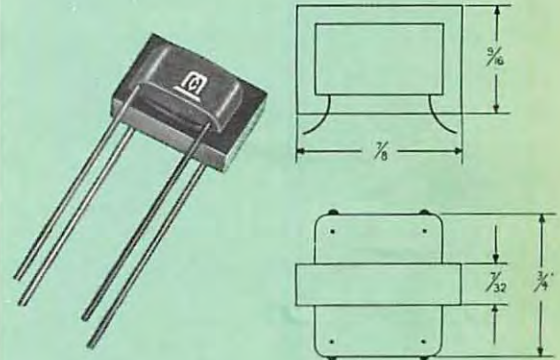
* Add either - F, or - FB, or - FPB to part No. to designate construction. See Photos

OPEN FRAME SM-F

SUB-MINIATURE SIZE

Weight .665 oz.

To order add -F to Part No. i.e. SMT3-F, SM1-F

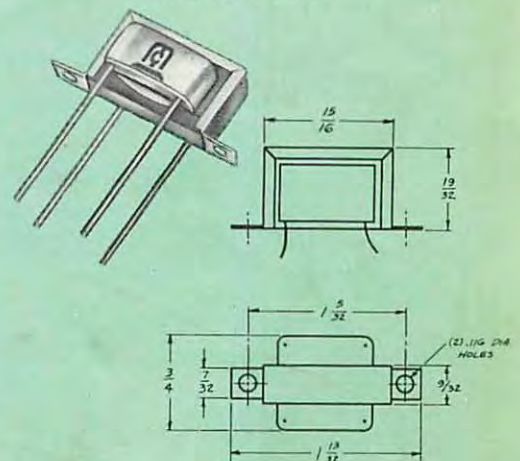


OPEN FRAME WITH CHANNEL SM-FB

SUB-MINIATURE SIZE

Weight .710 oz.

To order add -FB to Part No. i.e. SMT3-FB, SM1-FB

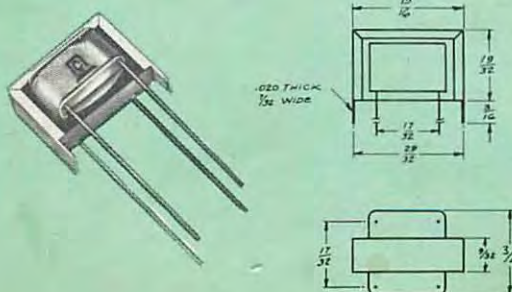


PLUG-IN TAB MOUNTED CHANNEL SM-FPB

SUB-MINIATURE SIZE

Weight .710 oz.

To order add -FPB to Part No. i.e. SMT3-FPB, SM1-FPB

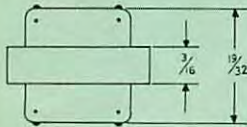
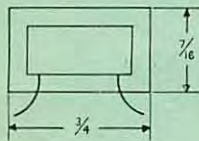


OPEN FRAME MICRO-MINIATURE TRANSFORMERS

These units are designed for use in Airborne Equipment, Missile Devices and Miniature Amplifiers. Thorough baking and resin impregnation assure reliable life. Insulating materials used are compatible for later epoxy potting of complete assemblies. Supplied with 4 inch #27 color coded vinyl leads. Available from stock.

OPEN FRAME MM-F MICRO-MINIATURE SIZE

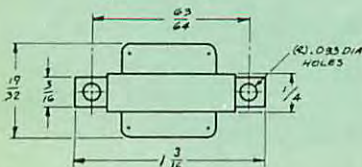
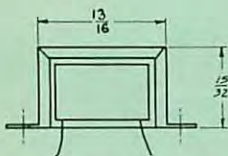
Weight .375 oz.
To order add -F to Part No.
i.e. MMT3-F, MM1-F



OPEN FRAME WITH CHANNEL MM-FB

MICRO-MINIATURE SIZE
Weight .415 oz.

To order add -FB to Part No.
i.e. MMT3-FB, MM1-FB



MICRO-MINIATURE AUDIO TRANSFORMERS ("MM" SERIES)

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. DC. Unbalance Ma.	Operating Level DBM	Freq. Response ± 2 db.
MM1-(*)	Input	200/50	250,000/62,500	0	4	200-10,000
MM2-(*)	Interstage 3:1	10,000	90,000	0	4	150-10,000
MM3-(*)	Plate to line	10,000	200	3	20	150-10,000
MM4-(*)	Output	30,000	50	1	20	150-10,000
MM5-(*)	Reactor 50 HY at 1 MIL. D.C.	4,700 ohms D.C. Res.				
MM6-(*)	Output	100,000	60	0.5	20	250-10,000
MM7-(*)	Output	30,000	1200	0.5	20	200-10,000

MICRO-MINIATURE TRANSISTOR SERIES ("MMT" SERIES)

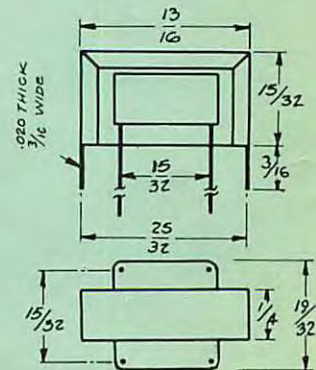
Part No.	Application	Primary Impedance	Secondary Impedance	Pri. DC. Unbalance Ma.	Operating Level DBM	Freq. Response ± 2 db.
MMT1-(*)	Line to Base	600	600	8	22	200-15,000
MMT3-(*)	Collector to Base or line	50,000	600	0.7	20	200-15,000
MMT4-(*)	P.P. collector to P.P. Base	50,000 C.T.	600 C.T.	1.4	20	200-15,000
MMT5-(*)	Collector to speaker	50,000	6	1	20	200-15,000
MMT7-(*)	Coll. to P.P. Base	25,000	1200 C.T.	1	20	200-15,000
MMT8-(*)	P.P. collector to P.P. Base	50,000 C.T.	1200 C.T.	1.4	20	200-15,000
MMT9-(*)	Line to P.P. Base	600 C.T.	1200 C.T.	16	22	200-15,000
MMT10-(*)	Collector to Base	25,000	600	1	20	200-15,000
MMT11-(*)	P.P. col. to P.P. Base or line	4,000 C.T.	600 C.T.	5	28	200-15,000
MMT12-(*)	Coll. to Spkr.	2,000	3.4	5	28	200-15,000
MMT13-(*)	Output P.P. collector to spkr.	4,000 C.T.	3.4	5	28	200-15,000
MMT16-(*)	Collector to P.P. Base	10,000	1,500 C.T.	1	20	200-15,000
MMT17-(*)	P.P. Coll. to P.P. Base	10,000 C.T.	200 C.T.	6	20	200-15,000
MMT18-(*)	P.P. Coll. to P.P. Base	25,000 C.T.	1,200 C.T.	2	20	200-15,000
MMT19-(*)	Collector to P.P. Base	2,500	2,500 C.T.	2	23	200-15,000

*Add either -F, or -FB, or -FPB to Part No. to designate construction. See Photos.

PLUG-IN TAB MOUNTED CHANNEL MM-FPB

MICRO-MINIATURE SIZE
Weight .415 oz.

To order add -FPB to Part No.
i.e. MMT3-FPB, MM1-FPB



On this page are listed units designed for the extremes in miniaturization. The 4 inch #27 color coded leads supplied are suitable for dip soldering in printed circuits. Thorough baking and resin impregnation assure reliable life. Insulating materials used are compatible for later epoxy potting of complete assemblies. Highest efficiency—space factor obtained by use of high permeability Nickel-Alloy Cores; Nylon Bobbins, Formvar Wire. Available from stock.

OPEN FRAME ULTRA and VERI-MINIATURE TRANSFORMERS

ULTRA-MINIATURE TRANSISTOR TRANSFORMERS ("UM" SERIES) Frequency Response ± 2 db. 300 to 10,000 Cycles

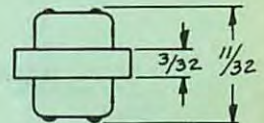
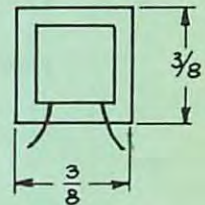
Part No.	Application	Primary Impedance	Secondary Impedance	Unbal. Pri. D.C. Ma.	Pri. D.C.R.	Sec. D.C.R.	Level MW.
UM21-F	Input	100,000	1,000	0	1,700	135	8
UM22-F	Driver	20,000	1,000	.5	1,000	90	2.5
UM23-F	Driver	20,000	1,200 C.T.	.5	1,000	100	2.5
UM24-F	Output	1,000	50	3	60	8.5	3
UM25-F	Output	400	50	3	30	4.5	4
UM26-F	Output	400	11	3	30	1.5	4
UM27-F	Output	400 C.T.	11	6	30	1.5	4
UM28-F	Choke	10 hy. (0 dc)		8 hy. (.5ma)	650		

VERI-MINIATURE TRANSISTOR TRANSFORMERS ("VM" SERIES) Frequency Response ± 2 db. 200 to 10,000 Cycles

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. D.C.R.	Sec. D.C.R.	Level MW.
VM1-*	Input	50	600 (1.5ma)	6	70	15
VM2-*	Input or Interstage	200,000	600 (1.0ma)	2650	80	5
VM3-*	Interstage	25,000	600 (1 ma)	675	45	5
VM4-*	Input or Interstage	200,000	1200 (.72ma)	2650	160	5
VM5-*	Interstage	50,000	600 (1.0ma)	1500	60	5
VM6-*	Interstage	100,000	1,200 C.T. (.72 ma)	2K	140	5
VM7-*	Output	500 (3.5ma)	3.4	60	.5	15
VM8-*	Output	1250 (2.0ma)	3.4	115	.5	15
VM9-*	Output	1250 (2.0ma)	50	115	.6	15
VM10-*	Interstage	2,500 (1.5 ma)	2,500 C.T.	225	225	3
VM11-*	Choke	20 hy. (0ma)	12 hy. (.5ma)	1000	—	—
VM12-*	Interstage	20,000	1,000 (.75 ma)	650	100	5
VM13-*	Interstage	20,000	1,000 C.T. (.75 ma)	650	100	5

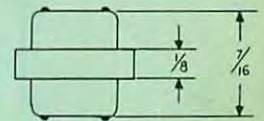
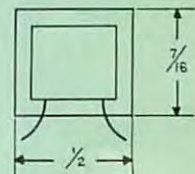
*Add either -F, or -M, or -FPB to Part No. to designate construction. See Photos.

OPEN FRAME UM-F ULTRA MINIATURE SIZE Weight .08 oz.



OPEN FRAME VM-F VERI-MINIATURE SIZE Weight .16 oz.

To order add -F to Part Number. i.e. VM2-F

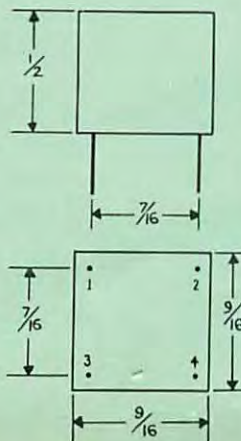


MOLDED VM-M

VERI-MINIATURE SIZE

Designed for plug-in printed circuit applications. Cast Epoxy resin provides highest resistance to extremes of ambient. Weight 1/4 oz.

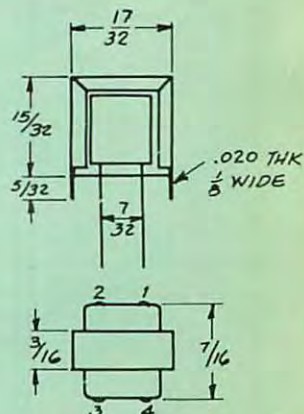
To order add -M to Part Number. i.e. VM2-M, VM9-M.



PLUG-IN TAB MOUNTED CHANNEL VM-FPB

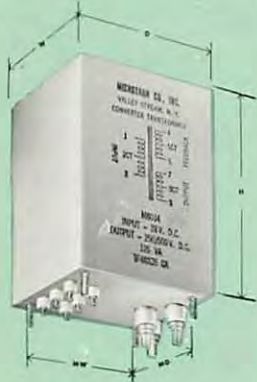
VERI-MINIATURE SIZE
Weight .2 oz.

To order add -FPB to Part Number. i.e. VM2-FPB



D. C. TO D. C. CONVERTER TRANSFORMERS

Permits conversion of low voltage direct current to high voltage for operating mobile and military electronic equipment. These miniaturized high efficiency transformers used in transistor switching circuits provide greatly improved reliability, efficiency, ruggedness, over vibrator and rotary power converters.



All transformers shown are hermetically sealed and constructed in accordance with MIL-T-27A Grade 4, Class R, 10,000 hour minimum life. Unique construction eliminates the difficulties usually experienced with high voltage random wound toroidal transformers and mechanical fragility of ferrite cores. On special order obtainable with modified electrical or mechanical specifications. Available from franchised stocking distributors.

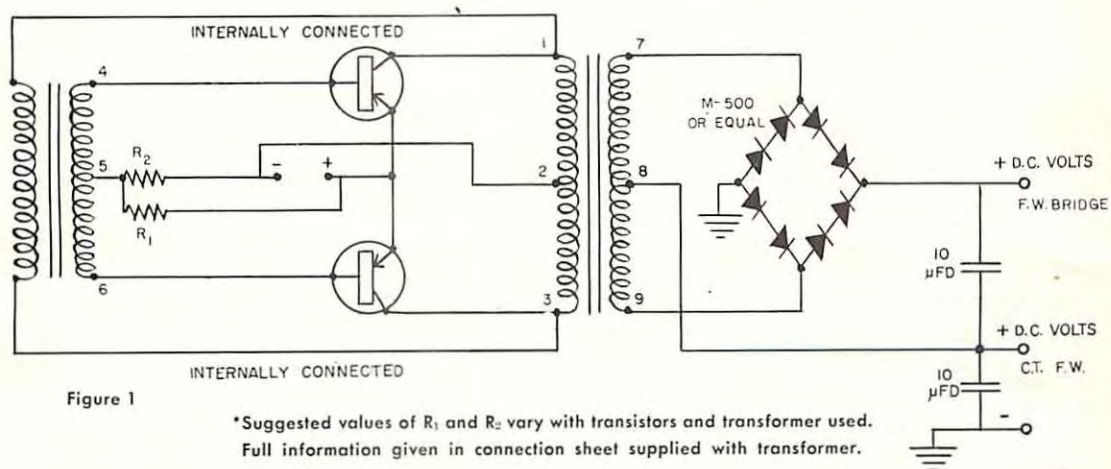
D. C. TO D. C. CONVERTER TRANSFORMERS

Part Number	Nominal D.C. Input Volts	Total V.A. Output*	Typical** Transistors	D.C. Output*				D	Size W	H	Mounting Centers		MIL Case
				F.W. Bridge Volts	Ma.	C.T. Full wave Volts	Ma.				MD	MW	
M8034	28	125	Delco 2N174	500	250	250	420	2 3/4	2 3/8	3 13/16	2 1/8	1 3/4	GA
M8035	13.6	125	Delco 2N442	500	250	250	420	2 3/4	2 3/8	3 13/16	2 1/8	1 3/4	GA
M8036	13.6	40	CBS 2N256	450	90	225	155	2 5/16	2 1/16	3 1/8	1 11/16	1 7/16	FA
M8037	13.6	22.5	Clevite 2N257	250	90	125	155	1 15/16	1 13/16	2 3/4	1 3/8	1 1/4	EA

*Full wave and C.T. loads may be simultaneously drawn. However, for continuous duty operation, Total V.A. output shown should not be exceeded.

**Typical transistors suggested are for reference only, as user must verify that maximum transistor ratings will not be exceeded for the particular application.

TYPICAL DC-DC CONVERTER CIRCUIT



Overall DC to DC full load efficiencies up to 80% when used in circuit similar to Fig. 1: AC output voltage to input of rectifier is a nominal 800 cycle square wave permitting ease of filtering.

Professional quality cased input Transformers for connection to low level chopper, microphone, pick up, tape heads, or lines. All units are magnetically shielded to improve signal to noise ratio.

CHOPPER AND INPUT TRANSFORMERS

CHOPPER TRANSFORMERS

Efficiently transfers 30 to 500 cps. Transducer or Thermocouple signals to instrument amplifiers. Signal level range from .5 μ V. to .5 volts. Resin impregnated to minimize mechanical vibration noise signal. Low hum pick up assured by 3 mu-metal and 2 copper shields. Accurate center taps and external electrostatic shield connection improve low-level operation.

Part Number	Turns Ratio		Ind. of Full Pri. @ .5V. 60 ~	Imped. of Full Pri. @ .5V. 60 ~	D.C. Resistance		Magnetic Shielding	Hght.	Dia.	Wght. Oz.	Fig.
	Full Pri. To Full Sec.	1/2 Pri. To Full Sec.			Full Pri.	Sec.					
M8025	1:7.7	1:15.4	17.5	6,600	365	4140	90 DB.	1 ² / ₃₂	1 ³ / ₈ D.	4.5	A
M8026	1:3.2	1:6.4	60 HY.	22,500	455	3500	90 DB.	1 ² / ₃₂	1 ³ / ₈ D.	4.5	A



LOW LEVEL CHOPPER INPUT
6-32 x 7/16" Mounting studs on 1/2" centers. Available on special order with Plug-in header and hermetically sealed.

FIGURE A

PLUG-IN INPUT TRANSFORMERS

These Broadcast fidelity input transformers are double mu-metal shielded. Plug-in feature permits simple installation.

Part Number	Pri. Imp.	Sec. Imp.	Magnetic Shielding	Level DBM	Frequency Resp. ± 2 db.	Height	Width or Diameter	Weight Oz.	Figure
M8027	250/50 C.T.	50,000	65 DB.	+5	20-20,000	2 ³ / ₈	1 ¹ / ₈ D.	11	B
M8028	170	50,000	65	+5	20-20,000	1 ³ / ₄	1 D.	4	C
M8029	600	50,000	65	+5	20-20,000	2 ¹ / ₁₆	2	16	D
M8030*	200/50 C.T.	50,000	65	+5	20-20,000	2 ¹ / ₈	1 ¹ / ₈ D.	6	E
M8031	600 C.T./150	50,000	65	+5	30-20,000	2 ¹ / ₈	1 ¹ / ₈ D.	6	E
M8032†	250 C.T.	50,000	65	+5	20-20,000	2 ¹ / ₈	1 ¹ / ₈ D.	6	E
M8033†	50 C.T.	50,000	65	+5	20-20,000	2 ¹ / ₈	1 ¹ / ₈ D.	6	E

*M8030 is designed as a replacement for Ampex No. 1733-1.

†M8032 and M8033 mates with sockets on many RCA amplifiers.



FIGURE C

PHONO INPUT Auto Transformer

Designed to step up voltage of low level high fidelity phono pickups. Case may be rotated for minimum hum pickup. Supplied with 28" shielded cable terminated with standard phono plug. Standard phono receptacle mounted on can.



FIGURE E

MIKE INPUT Plug-in Base

M8030 and M8031 has an 8 pin Octal plug. M8032 and M8033 has a 9 pin Octal Type plug. Matches the sockets on many commercial Public Address and Tape Recorder amplifiers. Available on special order with alternate plug-in headers or hermetically sealed.



FIGURE D

PHONO INPUT AUTO Transformer Drawn Steel Case

Designed to step-up voltage of low level high fidelity phono pickups. Supplied with phono receptacle on case and with 28" shielded cable terminated with standard phono plug.



FIGURE B

MIKE INPUT In-line

Designed for insertion in mike cable circuit. Supplied with 6" microphone cable. Input receptacle mates with Amphenol 91-PC4F Plug, (not supplied.)

Microtran designs

PROTOTYPES — SHORT RUNS



Figure C
Half-Shell
Figure D
Vertical End Bells



Figure E
Encapsulated Channel Mtd.



Figure F
Open Frame



Figure FPB
Open Frame, Plug-in channel
Figure FB
Open Frame Channel Mtd.



Figure H
Miniature Hermetic



Figure I
Encapsulated with terminal
board and Bracket



Figure J
Open Frame with Lugs
Figure K
Open Frame with Leads

RAPID DELIVERY OF CUSTOM BUILT TRANSFORMERS

Separate Sampling Department for quick delivery. Immediate service assured by large stocks of high temperature insulation and other specialized materials.

IN-PLANT TESTING assures full compliance with military requirements and often saves weeks on contract completion. Units can be supplied to meet MIL-T-27A, MIL-T-9219, AN-E-19, CAA-R-9786, MIL-E-5400, MIL-E-16400, MIL-E-4158, MIL-E-8189A, MCREE-553, MIL-T-945A.

LISTED BELOW are typical units that Microtran has produced. Transformers similar to the items shown are available on special order in a large variety of mounting types and electrical ratings. Price and delivery will be promptly supplied upon receipt of specifications and quantity required. Write for Design Request Forms.

400 CYCLE POWER SUPPLY TRANSFORMER

PRIMARY 115 VOLTS

Part No.	Secondary		Test Volts R.M.S.	Dimensions			Mounting Centers	Figure
	A.C. Volts	R.M.S. Ma.		L	W	H		
M2661	0/14/16/18	300	1,000	2 3/8	1 3/8	1 1/2	2	FB
M2954	24.2	10	1,500	3 15/16	3 3/8	5 1/4	3 x 2 7/16	MIL-KA
M2821	30	500	500	2 5/16	2 1/16	2 1/2	1 11/16 x 1 7/16	MIL-FB
M2880	32	5.5 A	500	3 15/16	3 3/8	5 1/4	3 x 2 7/16	MIL-KA
M2478	40 C.T.	200	500	2 3/8	1 1/4	1 3/8	2	FB
M2845	60 C.T.	166	500	1 5/16	1 5/16	1 3/4	1 1/4	MIL-AH
M2494	70	10	500	1 3/64	13/16	27/32	1 3/64	FPB
M2835	112 C.T.	500	500	1 7/8	1 5/8	2	1 7/16 x 1 3/16	MIL

400 CYCLE POWER TRANSFORMER

PRIMARY 115 VOLTS

Part No.	Plate Supply		Rectifier Filament		Dimensions			Mounting Centers	Figure
	A.C. Volts	D.C. Ma.	Volts	Amps	L	W	H		
M2751	115	5	6.3	0.35	1 5/16	1 5/16	1 3/4	1 1/4	MIL
M2756	4.8K C.T./550	10	2.5	3.5	3 1/2	3 1/4	3 7/8	2 3/16 x 2 1/2	D
M2193	115	20	6.3 C.T.	1.3	1 15/16	1 13/16	2 3/4	1 3/8 x 1 1/4	MIL-EA
M2448	128	20	6.3	2.6	2 5/16	2 1/16	3 1/8	1 11/16 x 1 7/16	MIL-FA
	26	800							
M1092-2	800 C.T.	60	12.6 C.T.	1.0	2 3/8	1 15/16	2 1/4	1 11/16 x 1 13/32	R
M2588	500 C.T.	70	6.3 C.T.	3.0	2 3/4	2 3/8	2 13/16	2 1/8 x 1 3/4	MIL-GB
			0/5/6.3	2.0					
M2301	500 G.T.	120	6.3 C.T.	3.0	2 1/2	2 1/2	2 17/32	2 1/16 x 2	K
M1144	40	180	26.0	1.2	2 5/16	2 1/16	3 1/8	1 11/16 x 1 7/16	MIL-FA

to meet your needs!

PRODUCTION RUNS SOLICITED



Figure L
3 φ Encapsulated



Figure MIL
Hermetic MIL-T-27A Case



Figure N
Hermetic with flat bracket



Figure Q
Hermetic with Inserts



Figure R
Encapsulated Hipersil



Figure V
Rectangular Case with
rectangular flange



Figure W
Hermetic with Studs
opposite terminals

400 CYCLE FILAMENT TRANSFORMER PRIMARY 115 VOLTS

Part No.	Filament		Test Volts R.M.S.	Dimensions			Mounting Centers	Figure
	Volts	Amps		L	W	H		
M2027	6.3	0.6	500	2 1/2	2	1 3/8	1	N
	6.3 C.T.	1.2						
M2655	6.3	1.5	1,500	2 1/8	1 13/16	3 9/32	1 3/8 x 1 1/16	MIL
	6.3	1.5						
M2810	6.3 C.T.	2.0	1,000	1 15/16	1 13/16	2 3/4	1 3/8 x 1 1/4	MIL-EA
	6.3 C.T.	2.0						
M2906	6.3 C.T.	5.0	1,000	2 1/4	1 3/4	2	1 7/16 x 1 9/32	R
M2611	6.3 C.T.	2.0	1,000	3 1/16	2 5/8	4 1/4	2 19/64 x 1 55/64	Q
	6.3 C.T.	10.0						
M2724	12.6 C.T.	3.0	1,000	2 1/2	2 5/16	3 5/8	1 3/4 x 1 9/16	MIL
	6.3	1.2						
M2829	12.6	0.3	500	1 5/8	1 5/8	2 3/8	1 3/16 x 1 3/16	MIL-AJ
	12.6	0.3						
	12.6	0.3						
M2830	12.6 C.T.	5.0	500	3 9/16	3 1/16	4 7/8	2 5/8 x 2 1/8	MIL-JA
	12.6 C.T.	5.0						
M2812	26.0	1.0	1,000	1 15/16	1 13/16	2 3/4	1 3/8 x 1 1/4	MIL-EA

3 φ POWER TRANSFORMER 400 AND 60 CYCLE

Part No.	Freq.	V.A. Capacity	Input Volts Line to Line	Output Volts Line to Line	Dimensions			Mounting Centers	Figure
					L	W	H		
M2445	400	70	208	115	2 5/16	1 7/8	2 3/4	1 3/8 x 1 1/4	MIL
M2476	60	75	208	5	2 5/8	2 1/2	5 7/8	1 7/8 x 1 13/16	W
M2300	400	100	208	115	4 7/8	1 3/4	2 1/4		F
M1359	400	400	199	115	4 9/16	2 3/4	4 5/16	2 1/2 x 2 1/8	L
M2475	60	1,650	208	22	11 7/8	6 3/4	6 3/4	6 7/8 x 3 3/4	W

400 CYCLE ISOLATION TRANSFORMER

Part No.	Input Voltage	Output Voltage	V.A. Rating	Dimensions			Mounting Centers	Figure
				L	W	H		
M2568	115	115	0.115	1	1	1 3/8	1 1/8	MIL-YY
M2744*	115	115	0.51	15/16D		1 7/16	1 1/8	H
M2805*	115	115	2.1	1	1	1 3/8	1 1/8	MIL-YY
M2677	115	115/115/115	4.6/4.6/4.6	1	1	1 3/8	1 1/8	MIL-YY
M2485	114/117/120/123	115	500	3 15/16	3 1/8	5 1/4	3 x 2 7/16	MIL-KA

* Electrostatic Shielding

CUSTOM BUILT TO ORDER ONLY

Microtran designs

PROTOTYPES — SHORT RUNS

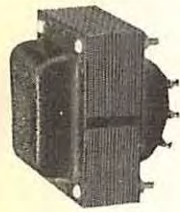


Figure D
Vertical End Bells
Figure C
Half-Shell



Figure E
Encapsulated Channel Mtd.



Figure F
Open Frame



Figure FPB
Open Frame, Plug-in channel
Figure FB
Open Frame Channel Mtd.



Figure H
Miniature Hermetic



Figure I
Encapsulated with terminal
board and Bracket



Figure J
Open Frame with Lugs
Figure K
Open Frame with Leads

60 CYCLE POWER TRANSFORMERS PRIMARY 115 VOLTS

Part No.	Plate Supply A.C. Volts	D.C. Ma.	Rectifier Filament		Filament No. 2		Dimensions			Mounting Centers	Figure
			Volts	Amps	Volts	Amps	L	W	H		
M2257	115	10	12.6 C.T.	1.2			3 1/4	1 5/8	1 15/16	2 13/16	FB
M1079	470 C.T.	25	6.3	2.5			3 7/32	2	2 23/32	2 13/16	FB
M1465	720 C.T.	30	6.3	0.6	12.6	0.45	2 5/8	2 3/16	2 1/8	2 3/16 x 1 3/4	D
M2467	600 C.T.	35	5.0	2.0	6.3	1.35	4	3 3/16	3 7/8	3 1/2 x 2 1/4	V
M2571	550 C.T.	55	5.0	2.0	6.3 C.T.	3.0	3 9/16	3 1/16	3 7/8	2 5/8 x 2 1/8	MIL-JB
M1509	480 C.T.	70	6.3	3.0			3 1/8	2 5/8	3 1/8	2 3/16 x 2	D
M2558	386 C.T.	70	6.3	2.5			3 1/16	2 5/8	4 1/4	2 19/64 x 1 55/64	MIL-HA
A 3173	580 C.T.	90	6.3	2.5	5.0	2.0	3 3/4	3 1/8	3 1/4	3 1/8 x 2 1/2	C
M2335	690 C.T.	95	6.3 C.T.	2.5	6.3	1.5	4 7/16	3 5/8	4 11/32	3 7/8 x 2 3/4	V
					5.0	2.0					
M1419	700 C.T.	150	6.3 C.T.	12.0	6.3	5.0	4 15/16	3 27/32	4 19/32	3 13/16 x 3	D
					5.0	3.0					
M2192	800 C.T.	250	6.3	5.0	5.0	3.0	5	4 1/8	5	3 3/4 x 3	MIL
M2442	330	300 FWB	6.3 C.T.	10.0	6.3	3.0	4 11/16	4	4 15/16	3 11/16 x 3	MIL-MB

60 CYCLE POWER SUPPLY TRANSFORMER PRIMARY 115 VOLTS

Part No.	Secondary		Test Volts R.M.S.	Dimensions			Mounting Centers	Figure
	A.C. Volts	R.M.S. Ma.		L	W	H		
M1606	2.5	10	500	15/16 D		1 7/16	1 1/8	H
M2530	25.0 25.0	230 230	1,000	2 3/4	2 3/8	2 13/16	2 1/8 x 1 3/4	MIL-GB
M2552	26.5 C.T.	600	3,000	2 3/4	2 3/8	3 13/16	2 1/8 x 1 3/4	MIL-GA
M2277	32.0	1.55A	500	3 3/8	3	2 13/16	2 1/2 x 2 1/8	I
M2808	34.0	15A	500	7 1/2	6 1/2	5	6 3/4 x 4 5/8	MIL
M2531	40.0 40.0	400 400	1,000	3 1/16	2 5/8	3 3/16	2 19/64 x 1 55/64	MIL-HB
M2154	260 C.T.	750	1,500	4 7/16	3 27/32	4 19/32	3 5/16 x 3	D
M2244	600	300	1,500	4 11/16	4	6	3 11/16 x 3	MIL-MA
M2242	600	500	1,500	5 1/16	4 5/16	5 1/2	4 1/16 x 3 5/16	MIL-NB
M2170	980 C.T.	225	2,500	4 11/16	4	6	3 11/16 x 3	MIL-MA

60 CYCLE ISOLATION TRANSFORMER

Part No.	Input Voltage	Output Voltage	V.A. Rating	Dimensions			Mounting Centers	Figure
				L	W	H		
M2787*	110	110	0.8	2 1/8	1 1/8	1 3/16	1 3/4	FB
M2901	115	115	6.0	2 11/16	2 7/32	2 11/16	2 3/8 x 1 1/2	V
M2294*	105/115/125	118 C.T.	90.	3 7/8	3 7/8	5 15/32	2 3/4 x 2 3/4	MIL
M2595	117	117	250.	4 1/2	3 3/4	3 3/4	3 3/4 x 3	K

* Electrostatic Shielding

THESE ITEMS NOT CARRIED IN STOCK

to meet your needs!

PRODUCTION RUNS SOLICITED



Figure L
3 P Encapsulated



Figure MIL
Hermetic MIL-T-27A Case



Figure N
Hermetic with flat bracket



Figure Q
Hermetic with Inserts



Figure R
Encapsulated Hipersil



Figure V
Rectangular Case with
rectangular flange



Figure W
Hermetic with Studs
opposite terminals

60 CYCLE FILAMENT TRANSFORMER PRIMARY 117 VOLTS

Part No.	Filament		Test Insulation Volts R.M.S.	Case Dimensions			Mounting Centers	Figure
	Volts	Amps		L	W	H		
M1070	5.0 C.T.	4.0	1,500	2 5/16	2 1/16	3 1/8	1 11/16 x 1 7/16	MIL-FA
M2245	5.0 C.T.	6.0	6,600	3 9/16	3 1/16	4 7/8	2 5/8 x 2 1/8	MIL-JA
M2934	6.3	0.6	1,500	2 3/8	1 3/8	1 1/2	2	FB
M2258	6.3	1.2	1,000	3 3/4	3 3/8	4 1/2	3 x 2 3/8	K
M2551	6.3	2.0	1,500	3 1/4	1 5/8	1 15/16	2 13/16	FB
M2229	6.3 C.T.	0.6	1,000	3 1/4	1 13/16	1 15/16	2 13/16	FB
M2166	6.3 C.T.	0.6	3,500	3 9/16	3 1/16	3 7/8	2 5/8 x 2 1/8	MIL-JB
	6.3	4.0						
M2885	6.3 C.T.	5.0	1,000	3 1/2	2 13/16	3 1/2	3 1/2 x 2	V
	5.0 C.T.	4.0						
M1631	6.3 C.T.	1.0	3,500	3 9/16	3 1/16	4 7/8	2 5/8 x 2 1/8	MIL-JA
	6.3 C.T.	1.5						
	6.3 C.T.	4.5						
M2309	6.3 C.T.	20.0	2,500	3 3/4	3 3/8	4 1/2	3 x 2 3/8	K
M1191	7.5	3.0	1,500	2 3/4	2 3/8	3 13/16	2 1/8 x 1 3/4	MIL-GA
M2228	12.6	65.0	1,500	7 1/2	7	7	5 x 4	Q
M1395	24.0	1.0	1,500	2 3/4	2 3/8	3 13/16	2 1/8 x 1 3/4	MIL-GA

OSCILLOSCOPE POWER TRANSFORMERS PRIMARY 117 VOLTS

Part No.	Frequency	Plate Supply		High Voltage		Filaments		Filaments		Filaments		Dimensions			Mounting Centers	Figure
		A.C. Volts	D.C. Ma.	A.C. Volts	D.C. Ma.	Volts	Amps	Volts	Amps	Volts	Amps	L	W	H		
M1132	50/60	740 C.T.	85	815	5.	5.0	2.0	6.3	0.6	6.3	3.2	3 3/4	3 1/8	3 1/8	3 1/8 x 2 1/2	J
M2225	50/60	700 C.T.	50	925	5.	6.3	3.75	6.3	0.6	5.0	2.0	3 7/8	3	3 1/2	2 1/8 x 2 1/4	D
M1530	50/60			1,500	1.5							3 9/16	3 1/16	3 7/8	2 5/8 x 2 1/8	MIL-JB
M1227	320/1,200			1,500	1.0	2.5	1.75					1 17/32	1 17/32	2 3/8	1 1/8 x 1 1/8	MIL
M2604	50/60	800 C.T.	200	1,600	2.0	6.3	6.5	5.0	3.	1.25	0.2	4 5/8	3 3/4	5 7/16	3 3/4 x 3	C
M2757	400			6,500	1.0	1.25	0.2					3 3/8	3 1/4	4 1/16	2 3/8 x 2 1/4	S

VIBRATOR TRANSFORMERS

Part No.	Primary Volts	Secondary A.C. Volts	D.C. Ma.	Dimensions			Mounting Centers	Figure
				L	W	H		
M2176	117-60 12 DC 6 DC	600 C.T.	300	4 1/2	3 3/4	4 5/8	3 3/4 x 3	C
M2346	12 DC	75/165	225	3	2 5/8	2 1/2	2 1/2 x 2 1/8	K
M1432	2 DC	300 C.T.	70	2 1/4	2 3/8	1 7/8		F
M2499	6 or 12 DC	220	100 1/2 Wave	3 3/4	3 1/2	4 1/2	2 1/2 x 2 1/8	K

CUSTOM BUILT TO ORDER ONLY

Microtran designs

PROTOTYPES — SHORT RUNS —



Figure C
Half-Shell
Figure D
Vertical End Bells

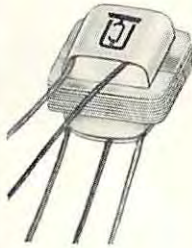


Figure F
Open Frame



Figure FPB
Open Frame, Plug-in channel
Figure FB
Open Frame Channel Mtd.



Figure G
Cylindrical with Spade lugs



Figure H
Miniature Hermetic

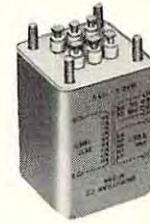


Figure MIL
Hermetic MIL-T-27A Case



Figure O
Miniature Hermetic with
flat bracket

FILTER REACTORS

Part No.	Current D.C. Ma.	Inductance Henries	D.C.R. Ohms	Test Volts	Dimensions			Mounting Centers	Figure
					L	W	H		
M2978	12	2	850.	500	17/32	7/16	15/32	17/32	FPB
FR-1	25	10	600.	2,000	1 5/16	1 5/16	1 3/4	1 1/4	MIL-AH
FR-2	60	10	230.	2,000	2 5/16	2 1/16	3 1/8	1 11/16 x 1 7/16	MIL-FA
M2490	85	15	300.	2,500	2 7/16	2 5/16	3 1/32	1 13/16 x 1 11/16	V
FR-3	120	8	150.	2,000	3 1/16	2 5/8	4 1/4	2 19/64 x 1 55/64	MIL-HA
FR-4	155	8	90.	2,000	3 9/16	3 1/16	4 7/8	2 5/8 x 2 1/8	MIL-JA
M2338	200	6	150.	1,500	2 3/4	2 19/32	3 3/32	1 3/4 x 2	D
M2271	250	2	50.	1,500	3	2 5/8	3 1/2	2 3/16 x 2 1/8	Q
M2174	320/20	4/20	85.	2,000	4 5/16	3 11/16	5 9/16	3 5/16 x 2 11/16	MIL-LA
M2243	500	2	30.	1,500	3 15/16	3 3/8	5 1/4	3 x 2 7/16	MIL-KA
M2592	600	0.32	9.5	1,500	3 1/4	1 7/8	1 15/16	2 13/16	FB
M2278	1A	0.05	2.	500	2 5/16	2 1/16	3 1/8	1 11/16 x 1 7/16	MIL-FA
M2909	1.75A	0.016	0.5	500	2 3/4	2 3/8	3 13/16	2 1/8 x 1 3/4	MIL-GA
M2474	5A	0.005	0.03	500	3 3/4	3 1/2	4 15/32	2 3/4 x 2 1/2	MIL
M2473	25A	0.005	0.032	500	5 7/8	4 3/4	6 5/8	4 1/8 x 3 7/16	MIL

AUDIO REACTOR

Part No.	Inductance Henries	Current D.C. Ma.	D.C.R. Ohms	Dimensions			Mounting Centers	Figure
				L	W	H		
M2495	1.0	0	50	1/2	7/16	7/16		F
M1812	2.0	3.0	780	1/2	7/16	7/16		F
M2082	6.0	0	1,400	1/2	7/16	7/16		F
M2501	10.0	0	318	13/16	19/32	15/32	25/32	FPB
M2312	20.0	5.0	1,175	1	1	1 3/8	1 1/8	MIL
M2402	100.0	0	1,700	1 3/16	19/32	15/32	63/64	FB
M2180	25/50/250	1/0.5/0	770	7/8	3/4	9/16		F

OUTPUT TRANSFORMERS

Part No.	Application	Primary Impedance	Secondary Impedance	Pri. Unbal. D.C. Ma.	Power Level	Freq. Response	Dimensions			Mounting Centers	Figure
							L	W	H		
M2220	Line Matching	15,000	600	7	4 Mw.	200-10,000	1 5/16	1 5/16	1 3/4	1 7/16	S
M2684	Plate to Line	15,000	200/500 C.T.	8	30 Mw.	50-20,000	1 5/8	1 5/8	2 1/4	1 5/16 x 1 5/16	V
M2393	Line to Speaker	600	8	0	150 Mw.	200-15,000	3/4	19/32	7/16		F
M1282	6V6 to Speaker	5,500	45	50	500 Mw.	100- 8,000	1 39/64	1 39/64	2 3/4	1 1/8 x 1 1/8	MIL
M1560	P. P. Plates to Speaker or Line	40,000 C.T.	600/8	2	1 Watt	250- 4,000	1 7/16	1 7/16	2	1 x 1	MIL
M1081	6V6's to Speaker	10,000 C.T.	8/3.2	10	5 Watts	80-10,000	2 13/16	1 1/2	1 5/8	2 3/8	FB
M2990	P. P. Coll. to Spkr.	64 C.T.	4	6	12 Watts	60- 8,000	4	2 1/8	2 9/16	3 9/16	FB
M1159	6V6's to Speaker	10,000 C.T.	4/8/15	10	15 Watts	60- 8,000	2 13/16	2 1/4	2 9/32	2 3/8	FB
M2628	Auto Transformer P. P. Coll. to Spkr.	50	16	420	20 Watts	200-10,000	2 13/16	1 1/2	1 5/8	2 3/8	FB
M1420	6L6's to Spkr.	6,600 C.T.	8	20	30 Watts	60-15,000	3 1/8	2 5/8	3 1/8	2 3/16 x 2	D
M2439	Class B Modulation	5,000 C.T.	3,000	300	100 Watts	300- 3,000	3 25/32	3 7/16	4 13/64	3 1/16 x 2 3/4	D
M2554	Class B Modulation	21,000 C.T.	8,000 @ 250 Ma.		250 Watts	150- 3,000	5 25/32	5 25/32	7	4 7/8 x 4 7/8	MIL

THESE ITEMS NOT CARRIED IN STOCK

to meet your needs!

PRODUCTION RUNS SOLICITED



Figure S
Cased with Studs and Leads



Figure T
Hermetic with Plug-in Header



Figure U
Cylindrical with rectangular flange



Figure V
Rectangular Case with rectangular flange



Figure X
Hipersil with terminal board



Figure R
Encapsulated Hipersil

LOW LEVEL CHOPPER INPUT TRANSFORMER

Part No.	Freq.	Turns Ratio 1/2 Pri. to Full Sec.	Source Impedance	Secondary Load	D.C.R.		Magnetic Shielding	Dimensions			Mounting Centers	Figure
					Full Pri.	Sec.		L	W	H		
M2057	400	1/2.81	500	50,000	675	1325		15/16 D		1 7/16	1 1/8	H
M2988	55	1/1	1500	2,500 C.T.	920	654	90 db	1 3/8 D		1 25/32	1 1/2	S
M2305	400	1.42/2	200	4,000 C.T.	308	325		3/4	19/32	7/16		F

400 CYCLE SERVO DRIVER AND OUTPUT TRANSFORMERS

Part No.	Primary Impedance	Pri. Unbal. D.C. Ma.	Secondary Impedance	Power Level	Dimensions			Mounting Centers	Figure
					L	W	H		
M2858	100 C.T.	2.	100 C.T.	100 Mw.	1 5/32	7/8	7/8	1 3/4	M-M
M2956	1,000 C.T.	0.	1,000 C.T.	150 Mw.	51/64	17/32	11/16	25/64	FPB
M2477	8,000 C.T.	4.	500 C.T.	500 Mw.	1 11/16	13/16	27/32	1 3/8	FB
M2601	288 C.T.	12.	125	1 Watt	15/16	3/4	19/32	29/32	FPB
M2955	1,400 C.T.	15.	1,200	1 Watt	1 11/16	13/16	27/32	1 3/8	FB
M2923	1,600 C.T.	15.	450	1 Watt	1 11/16	13/16	27/32	1 3/8	FB
M1828	4,750	15.	250	1 Watt	2 1/16	1 3/8	1 7/16	1 3/4	E
M1378	6,000	38.	180	1.3 Watts	15/16 D		1 7/16	1 1/8	H
M2472	2,500 C.T.	2.	300	1.5 Watts	1 3/8	1 3/8	1 5/8	1 1/8 x 1 1/8	H
M2254	200 C.T.	20.	1,000	3.0 Watts	1	13/16	3/4		F
M2696	3,400 C.T.	2.5	2,500	3.5 Watts	2 1/8	1 1/8	1 3/16	1 3/4	FB
M3137	24,000 C.T.	5.	3,800	3.5 Watts	2 3/8	1 3/8	1 1/2	2	FB
M2848	200 C.T.	20.	1,640 C.T.	5.6 Watts	1 5/8	1 5/8	2 3/8	1 3/16 x 1 3/16	MIL-AJ
M2769	10,000 C.T.	9.	500	7 Watts	2 3/8	1 1/8	1 1/2	2	E
M2795	48 C.T.	30.	176	9 Watts	2 13/16	1 1/2	1 5/8	2 3/8	FB
M2849	62 C.T.	75.	510 C.T.	16 Watts	2 5/16	2 1/16	2 1/2	1 11/16 x 1 7/16	MIL-FB

400 CYCLE DEMODULATOR SUPPLY TRANSFORMER

PRIMARY 115 VOLTS

Part No.	Secondary A.C. Volts	Secondary R.M.S. M.A.	Dimensions			Mounting Centers	Figure
			L	W	H		
M2870	2.85/2.85	45/45	15/16 D		11/16	1 1/8	H
M2201	10/10	.01	7/8	3/4	9/16		F
M1454	60.0 C.T.	2.5	15/16 D		1 7/16	1 1/8	H
M1121	40/40	0.5/0.5	15/16 D		1 7/16	1 1/8	H
M1398	100 C.T.	1.0	1 3/16	19/32	15/32	63/64	FB



Epoxy Molded Transformer as used in airborne, printed circuit computer application



Figure M-M
Other Molded Transformers
available from stock;
see Index.

**CUSTOM BUILT
TO ORDER ONLY**



LVS-153 line voltage stabilizer

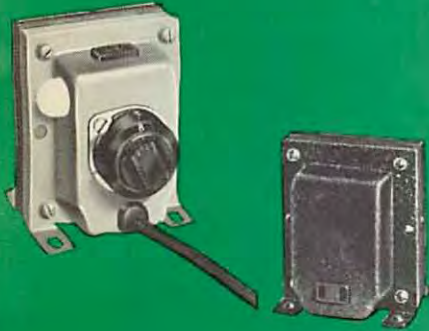
A popularly priced quality automatic voltage regulator. Stabilizes line for TV, radio or industrial use where load is constant. Input may vary between 95-130 volts, 60 cycles, nominal output voltage regulated $\pm 3\%$. One model covers 125 to 300 watt range. Built-in automatic relay turns stabilizer on with equipment.

Waveshape is free from distortions and frequency sensitivity of resonant type regulators. 50 cycle units available on special order.

Size: 10" x 5" x 9 1/2"

Weight: 10 lbs.

Finish: Mahogany Wrinkle



LVB-117 line voltage booster

Multi-tap selector switch restores line voltages of 90 thru 135 volts to 117 volts output. Calibrated neon indicator permits exact voltage adjustment. Automatic — turns on and off with set. Overload fuse protects against unsafe line increases.

Watts: 350 Weight: 4 lbs.
Size: 4 9/8" x 3 1/4" x 3 7/8"

Mtg. Centers: 2 3/16" x 2 1/2"
Finish: Mahogany Wrinkle

LVB "Jr" up-down voltage booster

Reliable, budget-priced unit. Single switch provides 10 volt boost or drop, or straight-through line.

Watts: 350 Weight: 3 lbs.
Size: 2 7/8" x 3 1/4" x 3 3/8"

Mtg. Centers: 1 11/16" x 2 1/2"
Finish: Mahogany Wrinkle



LVB-10 voltage booster

Miniaturized plug-in unit with 4 position switch that provides an "off" position not previously obtainable. Insures maximum performance of TV set when low or high line voltages distort picture or cause synch or oscillator drift.

Input: 100 to 130 volts
Output: 10 v. boost, 10 v. drop, line, off.
Watts: 250 w. 50/60 cycles

Size: 2 1/4" x 3 1/4" x 3 1/4"
Finish: Baked Enamel
Weight: 2 lbs.



cathode ray tube rejuvenator

Boosts CRT brightness. Units are resin treated; new design insures cool and buzz-free operation; 5 lead units for magnetic focus tubes only. 6 lead for both magnetic and electrostatic. Weight 8 oz.

#48B: Parallel sets, 6 leads
#49C: Parallel sets, 5 leads
#50D: Series sets, 6 leads

#51E: Parallel, isolation, 6 leads
#52: Parallel, 2-step boost, 6 leads
#53: Universal, isolation & boost

step down auto transformers

240/220V. to 120/110V. 50/60 cycle. Equipped with secondary standard receptacle and primary 6' U.L. approved line cord. Baked wrinkle finish.

Part No.	Application	DIMENSIONS			Mtg. Ctrs.	Weight
		L	W	H		
M1552	65 Watt capacity	3 23/32	2 1/2	2 9/32	3 1/8	3.5 lbs.
M1556	100 Watt capacity	3 1/8	2 7/8	3 1/2	1 3/4 x 2 1/4	4 lbs.
M1553	150 Watt capacity	3 1/4	2 7/8	3 1/2	2 1/4 x 2 3/8	5 lbs.
M1555	250 Watt capacity	3 7/8	3 1/4	3 7/8	2 11/16 x 2 1/2	6 lbs.
M1559	300 Watt capacity	3 3/4	3 7/8	4 5/8	2 7/16 x 3	7 lbs.
M1558	500 Watt capacity	4 7/8	3 7/8	4 5/8	3 9/16 x 3	12 lbs.
M1551	750 Watt capacity	5 1/2	4 1/2	5 3/8	3 1/4 x 3 1/2	16 lbs.
M1557	1000 Watt capacity	7	4 1/2	5 3/8	5 1/4 x 3 1/2	25 lbs.
M1554	1500 Watt capacity	8	4 1/2	5 3/8	6 1/4 x 3 1/2	29 lbs.
M1550	2000 Watt capacity	8 1/2	4 3/8	6	6 5/16 x 3 7/16	37 lbs.



PRECISION HI-FI ACCESSORIES

multi speaker matching and level adjusting transformer—model HM-80

This precision transformer has been designed for the Audiophile who is modifying or enlarging his sound system by the addition of auxiliary speakers, equalizers, cross-over networks, etc.

Permits these system changes to be made without unbalancing the present Hi-Fi Audio System by maintaining required impedance matches and power levels.

Power: 50 watts. Peak power 100 watts.

Frequency Response: 15 to 30,000 cycles.

Impedance Range:

Amplifier or Crossover Network: 16, 8, 4 Ω

1 to 3 speaker system (in any combination): 16, 8, 4 Ω .

Power Level Adjusting Range: 3 db steps

Guide Chart: Easy to follow hookup chart provided.

Size: $3\frac{1}{2}$ " x $3\frac{3}{8}$ " x $4\frac{5}{16}$ " high.

Mounting Centers: $2\frac{3}{4}$ " x $3\frac{7}{8}$ ".

Finish: Baked Enamel.

Weight: 4.0 lbs.



telephone pick-up coil—model HP-61

For transcribing telephone conversations with recorder or making messages audible on amplifier. May also be used as probe for locating sources of hum.

Equalized Level: Local and distant conversations recorded with more constant signal level than base mounted units.

Suction Cup: Mounting on telephone receiver.

Universal Model: One unit suitable for all types of telephones.

Plug-in Use: Supplied with 68" shielded cable, terminated with standard phone plug for mike input of recorder or amplifier.

Finish: Optical Black.

Compact: Size only $\frac{5}{8}$ " diameter x 2" long.

Weight: $1\frac{1}{2}$ ounces.



magnetic tape eraser—model HD-11

A bulk tape demagnetizer that develops a high intensity magnetic field. Erases recorded signals and noise from magnetic tape without rewinding. Saves unnecessary wear on heads and tape. Noise level reduced below level of standard erase heads. Restores tape to like new condition or better.

Spindle Mounting of reel permits rapid thorough coverage without missed spots.

Reel Size Range: 5", 7", 10 $\frac{1}{2}$ ". Spindle removable for use with other reel sizes.

Adapter Hub: Available on order for use with 10 $\frac{1}{2}$ " reels. Model HD-11-AD

Universal Use: May also be used for demagnetizing record—playback—erase heads, watches and other metal objects.

Rating: 117 volts AC, 5 amps.

Finish: Baked Enamel.

Size: 3" x 5" x 8".

Weight: 8 $\frac{1}{2}$ lbs.



A MUST FOR STEREO RECORDING

Most stereo recorders do not provide facilities for pre-erasing both tracks.

UNIVERSAL COIL KIT—MODEL 200K

Saves valuable service and development time . . . minimizes inventory problems, eliminates difficulty in obtaining hard-to-get replacements.

For Video Peaking . . . IF Circuits. Eight coils cover a range from 1 to 590 uh.

Q-Max impregnation.

Extra terminal for tiepoint convenience.

Spring clip mounting: designed for $\frac{5}{16}$ " chassis hole.

Full data enclosed on L min., L max., Q's, R, C distrib., Freq. self-res.

INDIVIDUAL CALIBRATION CHARTS permit approximate adjustment to required inductance value without test equipment. Individually packaged in 8 labeled plastic containers.

Complete Kit Model 200K.

Shipping weight per kit: 6 oz.

Single Coil Replacements Available

Coils	L. Min.	L. Max.
#200-1	1	2.7 uh
#220-2	2.4	7.6 uh
#200-3	6.6	20.0 uh
#200-4	16.0	55.0 uh
#200-5	33	110 uh
#200-6	74	225 uh
#200-7	100	310 uh
#200-8	200	590 uh



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Part No.	List Price	Part No.	List Price	Part No.	List Price	Part No.	List Price	Part No.	List Price	Part No.	List Price
MINIATURE TRANSFORMERS											
M1-A	\$11.75	M14-FB	\$ 6.50	MM7-H	\$10.75	MT6-P	\$13.50	MT23-M	\$16.00	ULTRA-MINIATURE TRANSFORMERS	
M1-AG	16.50	M14-H	15.00	MM7-M	12.75	MT7-A	13.25	MT23-P	13.25	UM21-F	\$10.00
M1-FB	6.25	M14-M	17.00	MICRO-MINIATURE TRANSISTOR TRANSFORMERS		MT7-AG	15.75	SUB-MINIATURE TRANSFORMERS		UM22-F	7.25
M1-H	15.00	M14-P	14.25	MMT1-FB	6.50	MT7-FB	6.75	SM1-AF	15.00	UM23-F	7.75
M1-M	17.00	M15-A	11.75	MMT1-H	12.25	MT7-H	14.25	SM1-FB	7.25	UM24-F	6.50
M1-P	14.25	M15-AG	14.00	MMT1-M	14.25	MT7-P	13.50	SM1-H	12.00	UM25-F	6.50
M2-A	11.75	M15-FB	6.00	MMT3-FB	6.75	MT8-A	13.50	SM2-AF	14.50	UM26-F	6.50
M2-AG	16.75	M15-H	12.50	MMT3-H	12.50	MT8-AG	16.00	SM2-FB	6.50	UM27-F	7.00
M2-FB	6.50	M15-M	14.50	MMT3-M	14.50	MT8-FB	7.00	SM2-H	11.50	UM28-F	6.25
M2-H	15.25	M15-P	14.25	MMT4-FB	8.00	MT8-H	14.50	SM2-M	15.00	VERI-MINIATURE TRANSFORMERS	
M2-M	17.25	TRANSISTOR DRIVER		MMT4-H	14.25	MT8-M	16.50	SM3-AF	14.50	VM1-FPB	7.00
M2-P	14.25	M8002	17.50	MMT4-M	16.25	MT8-P	13.75	SM3-FB	6.50	VM1-M	8.75
M3-A	10.75	M8003	18.50	MMT5-FB	7.25	MT9-A	13.50	SM3-H	11.50	VM2-FPB	9.50
M3-AG	15.75	M8004	17.00	MMT5-H	13.25	MT9-AG	16.00	SM3-M	15.00	VM2-M	11.25
M3-FB	6.00	M8005	17.00	MMT5-M	15.25	MT9-FB	7.00	SM4-AF	14.50	VM3-FPB	7.50
M3-H	14.25	M8006	15.75	MMT7-FB	7.50	MT9-H	14.50	SM4-FB	6.50	VM3-M	9.25
M3-M	16.25	TRANSISTOR OUTPUT		MMT7-H	14.00	MT9-M	16.50	SM4-H	11.50	VM4-FPB	9.50
M3-P	13.25	M8007	17.00	MMT7-M	16.00	MT9-P	13.00	SM4-M	15.00	VM4-M	11.25
M4-A	10.00	M8008	16.50	MMT8-FB	7.75	MT10-A	13.00	SM5-AF	13.50	VM5-FPB	7.75
M4-AG	13.25	M8008	16.50	MMT8-H	14.25	MT10-AG	15.50	SM5-FB	5.00	VM5-M	9.50
M4-FB	5.75	M8009	18.00	MMT8-M	16.25	MT10-FB	6.50	SM5-H	10.50	VM6-FPB	9.75
M4-H	11.75	M8010	17.50	MMT9-FB	7.00	MT10-H	14.00	SM5-M	14.00	VM6-M	11.50
M4-M	13.75	M8011	17.00	MMT9-H	12.75	MT10-M	16.00	SM6-AF	14.50	VM7-FPB	7.00
M4-P	12.50	M8012	17.50	MMT9-M	14.75	MT10-P	13.25	SM6-FB	7.25	VM7-M	8.75
M5-A	10.00	M8013	17.00	MMT10-FB	5.75	MT11-A	13.50	SM6-H	11.75	VM8-FPB	7.25
M5-AG	13.25	M8014	14.00	MMT10-H	12.00	MT11-AG	16.00	SM6-M	15.00	VM8-M	9.00
M5-FB	5.75	M8015	17.50	MMT10-M	14.00	MT11-FB	7.00	SUB-MINIATURE TRANSISTOR TRANSFORMERS		VM9-FPB	7.25
M5-H	11.75	M8016	14.25	MMT11-FB	7.25	MT11-H	14.50	SMT1-AF	11.25	VM9-M	9.00
M5-M	13.75	TRANSISTOR POWER		MMT11-H	13.00	MT11-M	16.50	SMT1-FB	6.50	VM10-FPB	7.75
M5-P	12.50	M8018	25.00	MMT11-M	15.00	MT12-A	13.00	SMT1-H	10.00	VM10-M	11.50
M6-A	10.75	M8019	26.50	MMT12-FB	6.50	MT12-AG	15.50	SMT1-M	12.00	VM11-FPB	6.75
M6-AG	15.75	M8020	30.00	MMT12-H	12.25	MT12-FB	6.50	SMT3-AF	12.25	VM11-M	8.50
M6-FB	6.00	M8021	26.50	MMT12-M	14.25	MT12-H	14.00	SMT3-FB	7.50	VM12-FPB	7.50
M6-H	14.25	M8022	27.00	MMT13-FB	6.75	MT12-M	16.00	SMT3-H	11.00	VM12-M	9.25
M6-M	16.25	M8023	31.50	MMT13-H	12.50	MT12-P	13.25	SMT3-M	13.00	VM13-FPB	7.75
M6-P	13.25	M8024	30.50	MMT13-M	14.50	MT13-A	13.25	SMT4-FB	8.25	VM13-M	11.50
M7-A	10.75	CHOPPER TRANSFORMERS		MMT16-FB	7.50	MT13-AG	15.75	SMT4-H	11.75	*STEP DOWN TRANSFORMERS	
M7-AG	17.25	M8025	23.00	MMT16-H	14.00	MT13-FB	6.75	SMT5-AF	12.00	M1550	80.00
M7-FB	6.25	M8026	23.00	MMT16-M	16.00	MT13-H	14.25	SMT5-FB	7.25	M1551	26.75
M7-H	15.75	DC to DC CONVERTER		MMT17-FB	7.50	MT13-M	16.25	SMT5-H	10.75	M1552	9.75
M7-M	17.75	M8034	44.50	MMT17-H	13.50	MT13-P	13.50	SMT5-M	12.75	M1553	12.50
M7-P	13.25	M8035	44.50	MMT17-M	15.50	MT14-A	12.00	SMT7-AF	12.50	M1554	55.00
M8-A	11.75	M8036	41.50	MMT18-FB	7.75	MT14-AG	14.50	SMT7-FB	7.75	M1555	13.25
M8-AG	16.50	M8037	37.50	MMT18-H	14.25	MT14-FB	6.00	SMT7-H	11.25	M1556	10.50
M8-FB	6.25	MICRO-MINIATURE TRANSFORMERS		MMT18-M	16.25	MT14-H	13.00	SMT7-M	13.25	M1557	40.00
M8-H	15.00	MM1-FB	7.50	MMT18-H	14.25	MT14-M	15.00	SMT8-FB	8.25	M1558	21.00
M8-M	17.00	MM1-H	12.25	MMT19-FB	6.75	MT14-P	12.25	SMT8-H	11.75	M1559	14.25
M8-P	14.25	MM1-M	14.25	MMT19-H	12.50	MT15-A	13.00	SMT8-M	13.75	*LINE VOLTAGE BOOSTERS	
M9-A	11.75	MM2-FB	8.00	MMT19-M	14.50	MT15-AG	15.50	SMT9-FB	7.00	LVB-10	7.50
M9-AG	16.50	MM2-H	12.50	MINIATURE TRANSISTOR TRANSFORMERS		MT15-FB	6.50	SMT9-H	10.50	LVB-117	17.95
M9-FB	6.25	MM2-M	14.50	MT1-A	12.00	MT15-M	16.00	SMT9-M	12.50	LVB-Jr	7.95
M9-H	15.00	MM3-FB	6.75	MT1-AG	14.50	MT15-P	13.25	SMT10-AF	11.75	LVB-153	34.95
M9-M	17.00	MM3-H	11.75	MT1-FB	6.00	MT18-A	13.50	SMT10-FB	7.00	*CRT REJUVENATOR	
M9-P	14.25	MM3-M	13.75	MT1-H	13.00	MT18-AG	16.00	SMT10-H	10.50	48-B	1.75
M10-A	12.50	MM4-FB	6.75	MT1-M	15.00	MT18-AG	16.00	SMT10-M	12.50	49-C	1.50
M10-AG	17.00	MM4-H	11.75	MT1-P	12.25	MT18-H	14.50	SMT11-AF	11.50	50-D	2.00
M10-FB	6.50	MM4-M	13.75	MT2-A	13.50	MT18-M	16.50	SMT11-FB	7.00	51-E	2.25
M10-H	15.50	MM5-FB	6.75	MT2-AG	16.00	MT18-P	13.75	SMT11-H	10.25	52	3.75
M10-M	17.50	MM5-H	11.50	MT2-FB	7.00	MT20-A	14.00	SMT12-AF	11.25	53	4.25
M10-P	15.00	MM5-M	13.50	MT2-H	14.50	MT20-AG	16.50	SMT12-FB	6.50	*HI-FI ACCESSORIES	
M11-A	11.75	MM6-FB	6.75	MT2-M	16.50	MT20-AG	16.50	SMT12-H	10.00	HD-11	27.50
M11-AG	16.50	MM6-H	11.75	MT2-P	13.75	MT20-FB	7.50	SMT12-M	10.00	HD-11-AD	2.70
M11-FB	6.25	MM6-M	13.75	MT3-A	13.00	MT20-M	17.00	SMT13-AF	11.50	HM-80	21.75
M11-H	15.00	MM7-FB	5.50	MT3-AG	15.50	MT20-P	14.25	SMT13-FB	6.75	HP-61	7.95
M11-M	17.00	DC to DC CONVERTER		MT3-FB	6.50	MT21-A	13.75	SMT13-H	10.25	*VARIABLE INDUCTANCES	
M11-P	14.25	M8034	44.50	MT3-H	14.00	MT21-AG	16.25	SMT16-AF	12.50	200-K	7.75
M12-A	12.50	M8035	44.50	MT3-M	16.00	MT21-FB	7.25	SMT16-FB	7.75	200-1 thru	
M12-AG	17.00	M8036	41.50	MT3-P	13.25	MT21-H	14.75	SMT16-H	11.25	200-8	1.00
M12-FB	6.25	M8037	37.50	MT4-A	13.00	MT21-M	16.75	SMT16-M	13.25		
M12-H	15.50	MICRO-MINIATURE TRANSFORMERS		MT4-AG	15.50	MT21-P	14.00	SMT17-FB	8.00		
M12-M	17.50	MM1-FB	7.50	MT4-M	16.25	MT22-A	13.75	SMT17-H	11.50		
M12-P	15.00	MM1-H	12.25	MT4-M	16.25	MT22-AG	16.25	SMT17-M	13.50		
M13-A	9.25	MM1-M	14.25	MT5-AG	15.50	MT22-FB	7.25	SMT18-FB	8.25		
M13-AG	12.25	MM2-FB	8.00	MT5-FB	6.50	MT22-H	14.75	SMT18-H	11.75		
M13-FB	5.50	MM2-H	12.50	MT5-H	14.00	MT22-M	16.75	SMT18-M	13.75		
M13-H	10.75	MM2-M	14.50	MT5-M	16.00	MT22-P	13.25	SMT19-AF	12.50		
M13-M	12.75	MM3-FB	6.75	MT5-P	13.25	MT23-AG	15.50	SMT19-FB	7.75		
M13-P	11.75	MM3-H	11.75	MT6-A	13.25	MT23-FB	6.50	SMT19-M	13.25		
M14-A	11.75	MM3-M	13.75	MT6-AG	15.75	MT23-H	14.00				
M14-AG	16.50	MM4-FB	6.75	MT6-AG	15.75						
		MM4-H	11.75	MT6-FB	6.75						
		MM4-M	13.75	MT6-H	14.25						
		MM5-FB	6.75	MT6-M	16.25						
		MM5-H	11.50								
		MM5-M	13.50								
		MM6-FB	6.75								
		MM6-H	11.75								
		MM6-M	13.75								
		MM7-FB	5.50								

NOTE: To determine pricing of Part Nos. with -F Suffix (i.e. MT1-F) deduct \$.50 from list price of equivalent -FB item (i.e. MT1-FB). List price of Part No. with -FPB is same as equivalent -FB item.

TERMS:
1% 10, Net 30
F.O.B. Valley Stream, New York
Minimum Billing \$7.50

INDUSTRIAL DISCOUNT
1-9 - 40%; 10-49 - 40/10%;
50-99 - 50%; 100-200 - 60%.
May not be intermixed.
*Discount shown does not apply.



MICROTRAN COMPANY, INC. 145 E. MINEOLA AVE., VALLEY STREAM, N. Y. • LOCUST 1-6050 • CABLE: CRESTLABS

WEST COAST WAREHOUSE: 1485 BAYSHORE BLVD., SAN FRANCISCO, CALIFORNIA. • JU. 7-8700



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